In the claims:

All claims in the application are indicated below.

1. (Currently amended) An optical monitoring system, comprising:

a moving body detection sub-system that images a monitored region onto an optical image plane and detects a moving body from changes over time in the monitored region;

a speed detection sub-system that detects a speed of the moving body in the optical image plane;

a scale detection sub-system that detects a size for the moving body in the optical image plane; and

a moving body estimation sub-system that decides whether the moving body is a predetermined monitored subject based on the speed detected by the speed detection sub-system and the size detected by the scale detection sub-system.

2. (Original) The monitoring system of claim 1, wherein the moving body estimation sub-system has an actual scale estimation sub-system that determines an estimated actual size of the moving body based on the speed detected by the speed detection sub-system and the size detected by the scale detection sub-system, the moving body estimation sub-system deciding whether the moving body is the predetermined monitored subject based on the estimated actual size of the moving body.

3. (Original) The monitoring system of claim 1, wherein the moving body estimation sub-system includes:

a correlation relationship storage sub-system that stores correlation relationships between the speed and size of predetermined classes of moving bodies; and

a class estimation sub-system that compares the speed detected by the speed detection sub-system and the size detected by the scale detection sub-system against the correlation relationships stored in the correlation relationship storage sub-system to estimate a class for the moving body, the class estimation

sub-system deciding whether the moving body is the predetermined monitored subject based on the estimated class of the moving body.

4. (Original) The monitoring system of claim 3, wherein the correlation relationship storage sub-system stores correlation relationships between speed and size statistically obtained from previous imaging test results for each class of moving body.

5. (Original) The monitoring system of claim 1, wherein the moving body estimation sub-system includes a moving body evaluation sub-system that determines an evaluation value indicating a certainty that the moving body is the predetermined monitored subject based on the speed detected by the speed detection sub-system and the size detected by the scale detection sub-system, the moving body evaluation sub-system deciding whether the moving body is the predetermined monitored subject based on the evaluation value determined by the moving body evaluation sub-system.

6. (Original) The monitoring system of claim 1, wherein the scale detection sub-system detects a size for the moving body in only one dimension in the image plane.

7. (Currently amended) The monitoring system of claim 1, wherein the scale detection sub-system detects a size for the moving body in two dimensions in the optical image plane.

8. (Currently amended) The monitoring system of claim 7, wherein the scale detection sub-system applies different weighting factors to the two dimensions in the optical image plane to provide improved identification of the predetermined monitored subject.

9. (Currently amended) The monitoring system of claim 7, wherein the two dimensions in the optical image plane correspond to horizontal and vertical directions in the monitored region, and the scale detection sub-system applies different weighting factors to the two dimensions in the optical image plane, with a greater weighting factor being applied to the dimension in the optical image plane corresponding to the vertical direction in the monitored region.

10. (Original) The monitoring system of claim 1, wherein the moving body detection sub-system includes a solid-state imaging element in which image signals are generated in plural pixels for each of first and second successive image frames, wherein a difference is obtained between the image signals generated in each pixel for successive first and second image frames.

11. (Currently amended) An optical monitoring system, comprising:

a moving body detection sub-system that images a monitored region onto an optical image plane and detects a moving body from changes over time in the monitored region;

a position detection sub-system that detects a position of the moving body in the optical image plane;

a scale detection sub-system that detects a size of the moving body in the optical image plane; and

a moving body estimation sub-system that decides whether the moving body is a predetermined monitored subject based on the position detected by the position detection sub-system and the size detected by the scale detection sub-system.

12. (Original) The monitoring system of claim 11, wherein the moving body estimation sub-system includes an actual scale estimation sub-system that determines an estimated actual size of the moving body based on the position detected by the position detection sub-system and the size detected by the scale detection sub-system, the actual scale estimation sub-system deciding whether the moving body is the predetermined monitored subject based on the estimated actual size of the moving body.

13. (Original) The monitoring system of claim 11, wherein the moving body estimation sub-system includes:

a correlation relationship storage sub-system that stores correlation relationships between the position and size of predetermined moving bodies; and

a class estimation sub-system that checks the position detected by the position detection sub-system and the size detected by the scale detection sub-system against the correlation relationships stored in the correlation relationship

storage sub-system to estimate the class of the moving body and decides whether it is the predetermined monitored subject based on the estimated class of the moving body.

14. (Original) The monitoring system of claim 11, wherein the moving body estimation sub-system includes a moving body evaluation sub-system that calculates an evaluation value indicating a certainty that the moving body is the predetermined monitored subject based on the position detected by the position detection sub-system and the size detected by the scale detection sub-system, the moving body evaluation sub-system deciding whether the moving body is the predetermined monitored subject based on the evaluation value of the moving body evaluation sub-system.

15. (Original) The monitoring system of claim 11, wherein the moving body detection sub-system includes a solid-state imaging element in which image signals are generated in plural pixels for each of first and second successive image frames, wherein a difference is obtained between the image signals generated in each pixel for successive first and second image frames.

16. (Original) The monitoring system of any of claims 1-3, 5, and 10-13, wherein the moving body estimation sub-system decides whether a moving body is the predetermined monitored subject for a limited specified area of the monitored region.

17. (Currently amended) An optical monitoring method, comprising:

imaging a monitored region onto an optical image plane and detecting a moving body from changes over time in the monitored region;

detecting a speed of the moving body in the optical image plane;

detecting a size for the moving body in the optical image plane; and

deciding whether the moving body is a predetermined monitored subject based on the detected speed in the optical image plane and the detected size in the optical image plane.

18. (Currently amended) The monitoring method of claim 17, further including:

determining an estimated actual size of the moving body based on the speed detected in the optical image plane and the size detected in the optical image plane; and

deciding whether the moving body is the predetermined monitored subject based on the estimated actual size of the moving body.

19. (Currently amended) The monitoring method of claim 17, further including:

storing correlation relationships between an optical image plane speed and an optical image plane size for predetermined classes of moving bodies;

comparing the detected speed in the optical image plane and the size detected in the optical image plane against the stored correlation relationships to estimate a class for the moving body; and

deciding whether the moving body is the predetermined monitored subject based on the estimated class of the moving body.

20. (Currently amended) The monitoring method of claim 17, further including:

determining an evaluation value indicating a certainty that the moving body is the predetermined monitored subject based on the speed detected in the optical image plane and the size detected in the optical image plane; and

deciding whether the moving body is the predetermined monitored subject based on the evaluation value.

21. (Original) The monitoring method of claim 17, further comprising deciding whether a moving body is the predetermined monitored subject only for a limited specified area of the monitored region.

22. (Currently amended) An optical monitoring method, comprising:

imaging a monitored region onto an optical image plane and detecting a moving body from changes over time in the monitored region;

detecting a position of the moving body in the optical image plane;

detecting a size of the moving body in the optical image plane; and

deciding whether the moving body is a predetermined monitored subject based on the position detected in the optical image plane and the size detected in the optical image plane.

23. (Currently amended) The monitoring system of claim 22, further including:

determining an estimated actual size of the moving body based on the position detected in the optical image plane and the size detected in the optical image plane, and

deciding whether the moving body is the predetermined monitored subject based on the estimated actual size of the moving body.

24. (Currently amended) The monitoring method of claim 22, further including:

storing correlation relationships between an image plane position and an image plane size of predetermined moving bodies; and

checking the position detected in the optical image plane and the size detected in the optical image plane against the stored correlation relationships to estimate the class of the moving body; and

deciding whether the moving body is the predetermined monitored subject based on the estimated class of the moving body.

25. (Currently amended) The monitoring method of claim 22, further including determining an evaluation value indicating a certainty that the moving body is the predetermined monitored subject based on the position detected in the optical image plane and the size detected in the image plane; and

deciding whether the moving body is the predetermined monitored subject based on the evaluation value.

26. (Original) The monitoring method of claim 22, further comprising deciding whether a moving body is the predetermined monitored subject only for a limited specified area of the monitored region.